Subject: Re: finding cluster boundary
Posted by Kenneth P. Bowman on Wed, 08 Feb 2012 23:51:20 GMT
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In article <a3d4e3c3-b379-48fb-aea9-e98ed9af35e5@n8g2000pbc.googlegroups.com>,
 biophys <biophys@gmail.com> wrote:

> Hi, Folks
>
> I've got a collection of 2D points that have already been identified
> as a cluster. Is there a quick way to extract the boundary points of
> the cluster? I understand the easiest way is to use TRIANGULATE
> procedure to get the boundary points in counterclockwise order.
> However, the points returned are like a convex envelope of the cluster
> which does not represent the real shape of the cluster. It looks like
> that I might need to specify that the edge of the boundary polygon can
> not be larger than a certain length. Any suggestions?

I don't think there is a unique definition of the 'boundary points'
in the way you are asking. How do you decide whether the boundary
should detour to an interior point or not?

Ken Bowman

Subject: Re: finding cluster boundary
Posted by biophys on Thu, 09 Feb 2012 00:39:18 GMT
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Thanks, Ken. You are right. I was thinking of setting a threshold, if
the edge is bigger in length than the threshold we remove the edge and
detour to an interior point. However, I am not sure if this is the
best way to do it. If I wanted to do it this way, now the question is
given a set of triangles and boundary B returned by TRIANGULATE,

IDL>TRIANGULATE, X, Y, Triangles, B

What is the most efficient way of finding the matching triangle from
Triangles that contains the edge to be removed? i.e. if
Distance(B[i],B[i+1]) > threshold, the immediate detouring point will
be in the matching triangle [B[i], B[i+1], Detour]. This process will
go iteratively until all boundary edges are shorter than the
threshold. I don't know how the indices are organized in the output
from TRIANGULATE. Is there a faster way than looping through all
indices to find the matching triangle? Preferably an "IDL way" would
be cool. :)

Cheers,

BP
>
> I don't think there is a unique definition of the 'boundary points'
> in the way you are asking. How do you decide whether the boundary
> should detour to an interior point or not?
>
> Ken Bowman

Subject: Re: finding cluster boundary
Posted by David Fanning on Thu, 09 Feb 2012 02:23:24 GMT

biophys writes:

> What is the most efficient way of finding the matching triangle from
> Triangles that contains the edge to be removed? i.e. if
> Distance(B[i],B[i+1]) > threshold, the immediate detouring point will
> be in the matching triangle [B[i], B[i+1], Detour]. This process will
> go iteratively until all boundary edges are shorter than the
> threshold. I don't know how the indices are organized in the output
> from TRIANGULATE. Is there a faster way than looping through all
> indices to find the matching triangle? Preferably an "IDL way" would
> be cool. :)

I think this is something MESH_DECIMATE might do.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")